What is claimed is:

1   1.   A method for predicting the time required to execute a database command,

2   comprising:

3   measuring a plurality of execution times to complete the database command;

4   recording the measured execution times, thereby creating a time historical record; and

5   using the time historical record to estimate the time required to execute the database

6   command.

1   2.   The method of claim 1, wherein said using the time historical record includes

2   analyzing the time historical record by using a statistical analysis technique to estimate the time

3   required to execute the database command.

1   3.   The method of claim 2, wherein said analyzing the time historical record includes

2   computing an average execution time based upon information concerning the database command

3   from the time historical record.

1   4.   The method of claim 3, wherein the average execution time is

2    $AvT = \sum M(i) / N$, where i is an integer and varies from 1 to N, N equals the number of

3   measurements recorded in the historical record of the execution time of the database command,

4   and M(i) is an ith measurement of the execution time of the database command.

1   5.   The method of claim 2, wherein said analyzing the time historical record includes

2   computing a moving range between prior measurements of the database command, based upon

3   information from the time historical record.

1   6.   The method of claim 5, wherein the moving range is $MR(i)=M(i+1)-M(i)$, where i

2   is an integer that varies from 1 to N, and M is a measurement of an execution time of the

3   database command.

1   7.   The method of claim 2, wherein said analyzing the time historical record includes

2   computing a maximum execution time.

1   8.   The method of claim 7, wherein said analyzing the time historical record includes

2   computing the maximum execution time based upon a specified confidence value.

1   9.   The method of claim 8, wherein the specified confidence value is configurable

2   based upon a probability that the database command will execute in less time than the computed

3   maximum execution time.

1   10.   The method of claim 7, further comprising:

2   executing the database command;

3   measuring a time to execute the database command; and

4   issuing a warning if the measured time to execute the database command exceeds the

5   maximum execution time.

1   11.   The method of claim 10, wherein the warning is a warning that a configuration of

2   the database may have changed.

1   12.   The method of claim 2, wherein said analyzing the time historical record includes

2   computing a minimum execution time.

1   13.   The method of claim 12, wherein said analyzing the time historical record

2   includes computing the minimum execution time based upon a specified confidence value.

1   14.   The method of claim 13, wherein the specified confidence value is configurable

2   based upon a probability that the database command will execute in less time than the computed

3   minimum execution time.

1   15.   The method of claim 12, further comprising:

2   executing the database command;

3   measuring a time to execute the database command; and

4   issuing a warning if the measured time to execute the database command is less than the

5   minimum execution time.

1   16.   The method of claim 15, wherein the warning is a warning that a configuration of

2   the database may have changed.

1   17.   The method of claim 1, wherein said database command is a database utility

2   command.

1   18.   The method of claim 17, further comprising recording within the time historical

2   record the time of execution of said measured database utility command.

1   19.   The method of claim 18, further comprising recording within the time historical

2   record the day of execution of said measured database utility command.

1   20.   The method of claim 17, further comprising recording within the time historical

2   record a database utility command option executed with said measured database utility

3   command.

1   21.   The method of claim 17, further comprising recording within the time historical

2   record a processor load of a computer executing said measured database utility command.

1   22.   The method of claim 17, further comprising recording within the time historical

2   record a storage access load of a computer executing said measured database utility command.

1   23.   The method of claim 17, wherein using the time historical record further

2   comprises selecting a historical record for analysis based upon one or more of the following:

3   a) the database utility command;

4   b) an option specified with a previously executed instance of the database utility

5   command;

6   c) the time that the previously executed instance of the database utility command was

7   executed;

8   d) the day that the previously executed instance of the database utility command was

9   executed;

10   e) a processor load on a machine executing a previously executed instance of the database

11   utility command; and

12   f) a storage access load on a machine executing a previously executed instance of the

13   database utility command.

1   24.   The method of claim 1, further comprising determining if a plurality of database

2   commands can execute within a fixed timeframe by analyzing each of the plurality of commands

3   based on prior execution time measurements for each of the plurality of database commands.

1   25.   The method of claim 1, wherein said database command is a command for which

2   a time required to execute has been estimated, the method further comprising:

3   editing the database command;

4   analyzing the time historical record using a statistical analysis technique to generate an

5   estimate of the time required to execute the edited database command.

1   26.   The method of claim 1, wherein said database command is a command file

2   containing a plurality of database commands.

1   27.   The method of claim 26, wherein times required to execute database commands

2   within said command file have been estimated, the method further comprising:

3   editing the database command file;

4   analyzing the time historical record using a statistical analysis technique to generate new

5   estimates of the time required to execute database commands contained within the edited

6   command file.

1   28.   An apparatus for predicting the time required to execute a database command,

2   comprising:

3   a historical record module having recorded therein a plurality of measurements of

4   execution times of the database command;

5   an analysis module coupled to the historical record module and configured to analyze the

6   measurements recorded in the historical record module; and

7   a utility scheduling module configured to determine whether to execute the database

8   command based on an analysis of the database command measurements.

1   29.   The apparatus of claim 28, wherein the analysis module is configured to

2   statistically analyze the time historical record to estimate the time required to execute the

3   database command.

1   30.   The apparatus of claim 28, wherein the database command is a database utility

2   command.

1   31.   The apparatus of claim 30, wherein the utility scheduling module is configured to

2   determine whether a plurality of database commands can execute within a fixed timeframe based

3   on the analysis module analyzing measurements relating the plurality of measurements recorded

4   in the historical record module.

1   32.   The apparatus of claim 30, further comprising a user interface module configured

2   for enabling a user to specify the database command to be analyzed.

1   33.   An apparatus for predicting a time for executing a database command,

2   comprising:

3   means for measuring a time to complete the database command;

4   means for recording the measured time, thereby creating a time historical record; and

5   means for analyzing the time historical record to estimate the time required to execute the

6   database utility command.

1   34.   The apparatus of claim 33, wherein said means for analyzing uses a statistical

2   analysis technique to analyze the time historical record to estimate the time required to execute

3   the database command.

1   35.   A computer program embodied on a computer readable medium for predicting a

2   time for executing a database command, comprising:

3   program instructions for measuring a time to complete execution of the database

4   command;

5   program instructions for recording the measured time, thereby creating a time historical

6   record; and

7   program instructions for analyzing the time historical record to estimate the time required

8   to execute the database utility command.

1   36.   The computer program of claim 35, wherein said program instructions for

2   analyzing use a statistical analysis technique to analyze the time historical record to estimate the

3   time required to execute the database command.